

Claims

1. Edge-carrying drill body (1), which is rotatable around a central geometric axis (C) and comprises a through channel (2) arranged for internal chip evacuation, which channel mouths in front and rear ends of the body, characterized in that one or more cutting edges (4) are made integrally with the rest of the body (1).

2. Drill body according to claim 1, characterized in that the same is made by injection of a cutting material-forming compound in a cavity (34) in a moulding tool while providing a green ware, as well as hardening of the green ware by sintering.

3. Drill body according to any one of the preceding claims, characterized in that the same comprises a front, edge-carrying head (5), as well as a thinner, hollow shaft (6), which is insertable into and connectable with a tube (3) in order to, together with the same, form a drilling tool for deep hole drilling.

4. Drill body according to claim 3, characterized in that the same is detachably connectable with the tube (3) via a connection means that includes a thread (24) on the shaft (6).

5. Drill body according to claim 4, characterized in that the thread consists of a male thread (24) on the outside of the shaft (6).

6. Drill body according to claims 2 and 5, characterized in that the chaser of the thread (24) along tangentially spaced areas on the shaft (6) is interrupted while forming planar, chaser-free formations (27) with the purpose of facilitating removal of individual mould parts from the green ware.

7. Drill body according to any one of claims 3-6, c h a r a c-  
t e r i z e d in that the same includes a breakage weakening  
(21) with the purpose of separating the head and the shaft in  
the event the head would be stuck in a workpiece.

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8. Drill body according to claim 7, c h a r a c t e r i z e d  
in that the breakage weakening consists of a peripheral  
groove (21) formed in the shaft.

10 9. Drill body according to any one of the preceding claims,  
c h a r a c t e r i z e d in that the same includes one single  
cutting edge (4), which extends from a tip to the periphery of  
the drill body, and that the through channel (2) includes an  
axially oriented, rear bore (9), which is concentric with the  
15 centre axis (C), as well as a front bore (10) serving as chip  
inlet, which bore extends in extension of and at an obtuse  
angle to the rear bore, on the outside of the drill body at  
least two strips (20) being formed that are tangentially spaced  
from each other and from the cutting edge.

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10. Drill body according to claim 9, c h a r a c t e r i z e d  
in that the chip inlet (10) is funnel-shaped and converges in  
the direction inwards/backwards towards the rear bore (9).

25 11. Drill body according to any one of claims 1-8, c h a r a c-  
t e r i z e d in that a front mouth to the through channel (2)  
is bridged over by a bridge (37) in which a plurality of edges  
(4) are included, which extend from a common, centring tip to  
the periphery of the drill body and which are located after a  
30 respective chip inlet (10) seen in the direction of rotation of  
the drill body.

12. Drill body according to claim 11, c h a r a c t e r i z e d  
in that the bridge (37) comprises three edges (4) that are  
35 separated 120° and converge into a common point that forms a  
centring tip (41).

13. Drill body according to claim 11, c h a r a c t e r i z e d  
in that the bridge (37) comprises two edges (4) that are paral-  
lel to each other, although displaced out of plane in relation  
to the centre axis (C), inner ends of the edges being inter-  
5 connected via an inclined chisel edge (38) having a punch,  
which forms a centring tip.

14. Drill body according to any one of claims 11-13, c h a r -  
a c t e r i z e d in that the head (5) of the drill body has an  
10 envelope surface (7) that is generally rotationally symmetrical  
and smooth so far that the same lacks protruding supporting  
strips.

15. Drill body according to any one of the preceding claims,  
15 c h a r a c t e r i z e d in that the individual cutting edge  
(4) is formed with a plurality of step-like displaced part  
edges (4a, 4b, 4c) having the purpose of generating part chips,  
the width of which is smaller than the total length of the  
edge.

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16. Method for the manufacture of an edge-carrying drill body  
(1) of the type that is rotatable around a central, geometric  
axis (C) and that comprises a through channel (2) arranged for  
internal chip evacuation, which channel mouths in front and  
25 rear ends of the drill body, c h a r a c t e r i z e d in that  
one or more cutting edges (4) are made integrally with the rest  
of the drill body (1).

17. Method according to claim 16, c h a r a c t e r i z e d by  
30 the steps of

- a) into a cavity (34) in a collapsible moulding tool, insert-  
ing at least two male plugs (35, 36), which together with  
internal surfaces of mould parts (31, 32, 33) decide the  
shape of the cavity,
- 35 b) into the cavity (34), injecting a compound containing a  
mixture of hard, cutting material-forming particles as well  
as an adhesive, while forming a green ware the shape of  
which corresponds to the shape of the cavity,

- c) form stripping the green ware by, on one hand, distancing the mould parts (31, 32, 33) from the green ware, and on the other hand removing the male plugs (35, 36), a first male plug (35) leaving a vacant space, which forms a rear bore (9) in the green ware being concentric with the centre axis (C), while a second male plug (36) leaves a front chip inlet (10) in the same,
- d) by extraction and heat treatment or solely heat treatment, stripping away the adhesive from the green ware while leaving only cutting material-forming particles in the same, and
- e) sintering the green ware treated in this way by heating to at least 1300 °C while receiving a hardened drill body (1) having the final shape and dimension.

18. Method according to claim 17, characterized in that one or more additional male plugs are inserted into the tool cavity (34), which plugs after injection of a first material compound are drawn out of the cavity in order to form one or more hollow spaces in which material compounds having other properties than the first material compound may be injected before form stripping of the green ware.

19. Drilling tool for deep hole drilling, comprising a tube (3) and a drill body (1) detachably connected with the same, characterized in that the drill body consists of a drill body according to any one of claims 1-15.